

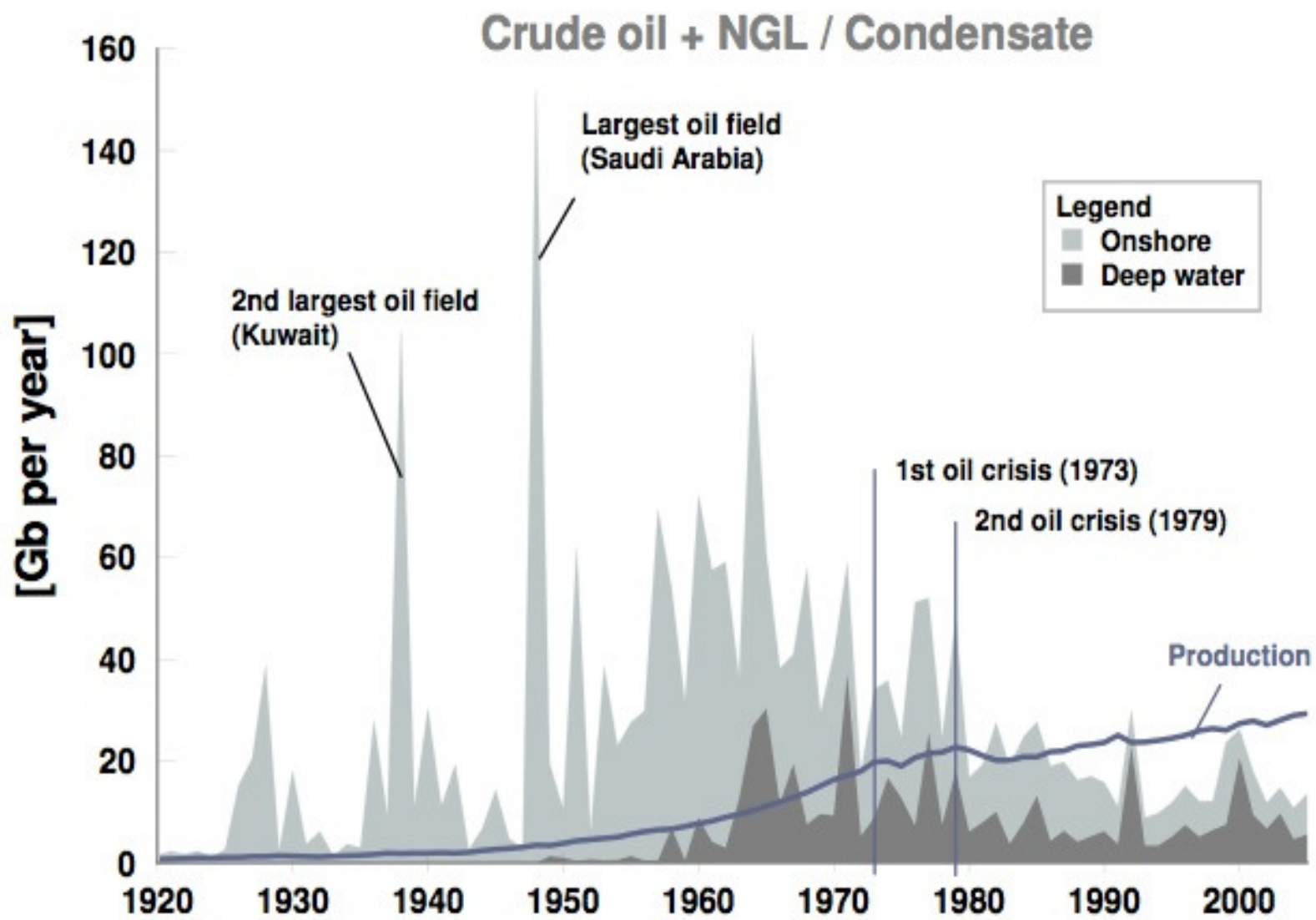
Energy Uncertainty: The End of Cheap Oil and the 2008 RTP

SCAG RTP Workshop
October 25, 2007

Today's Discussion

- Supply Uncertainty Facts
- Implications for transportation
 - Finance
 - Activity data assumptions based on cheap and abundant energy

Figure 1: History of oil discoveries (proved + probable) and production



Source: IHS Energy 2006

Energy Watch Group 2007

The world consumes two barrels of oil for every barrel discovered.

So is this something you should be worried about?



Figure 3: Typical production pattern for an oil region

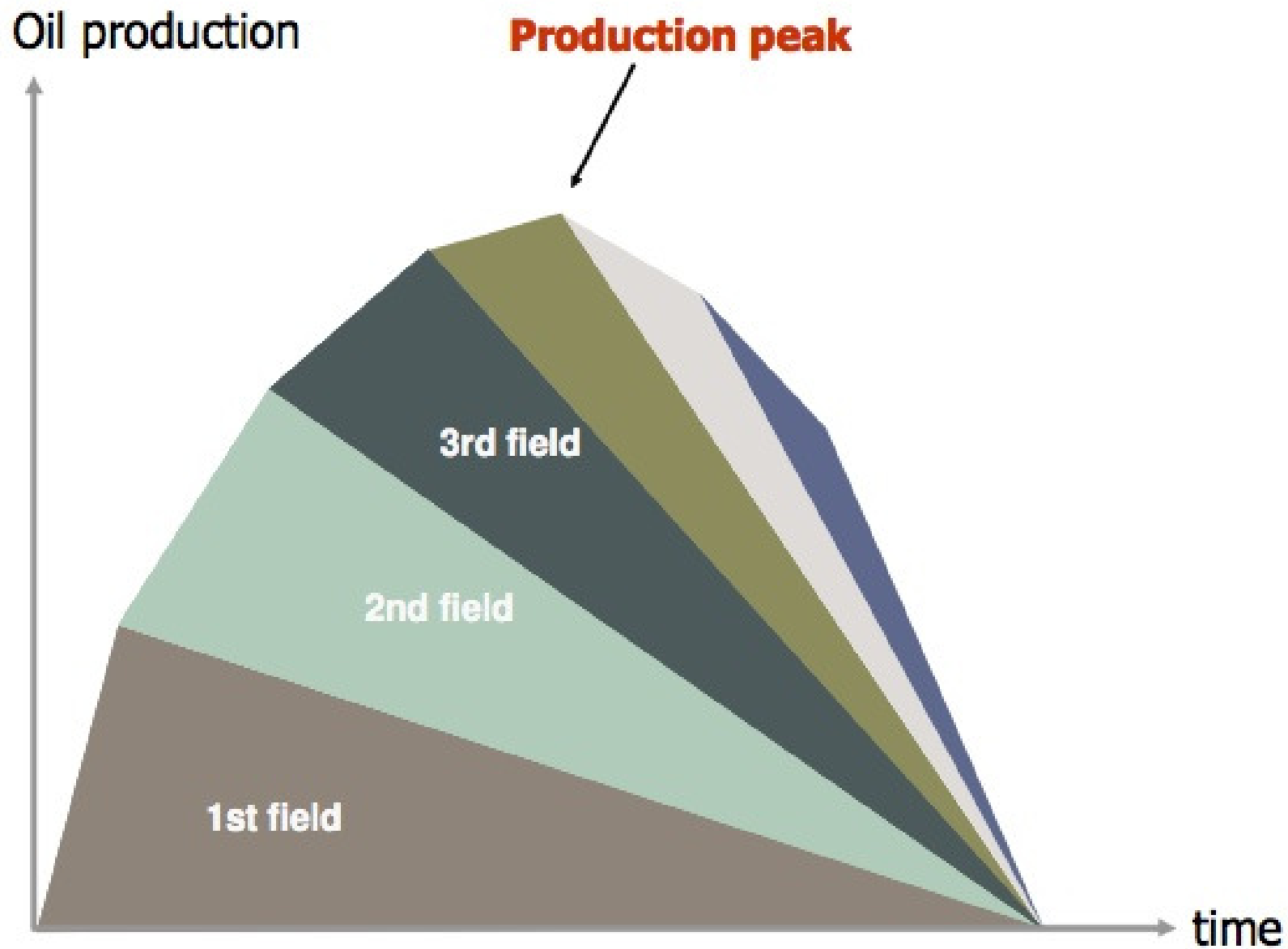


Figure 6: Oil production of the oil majors from 1997 to 2007

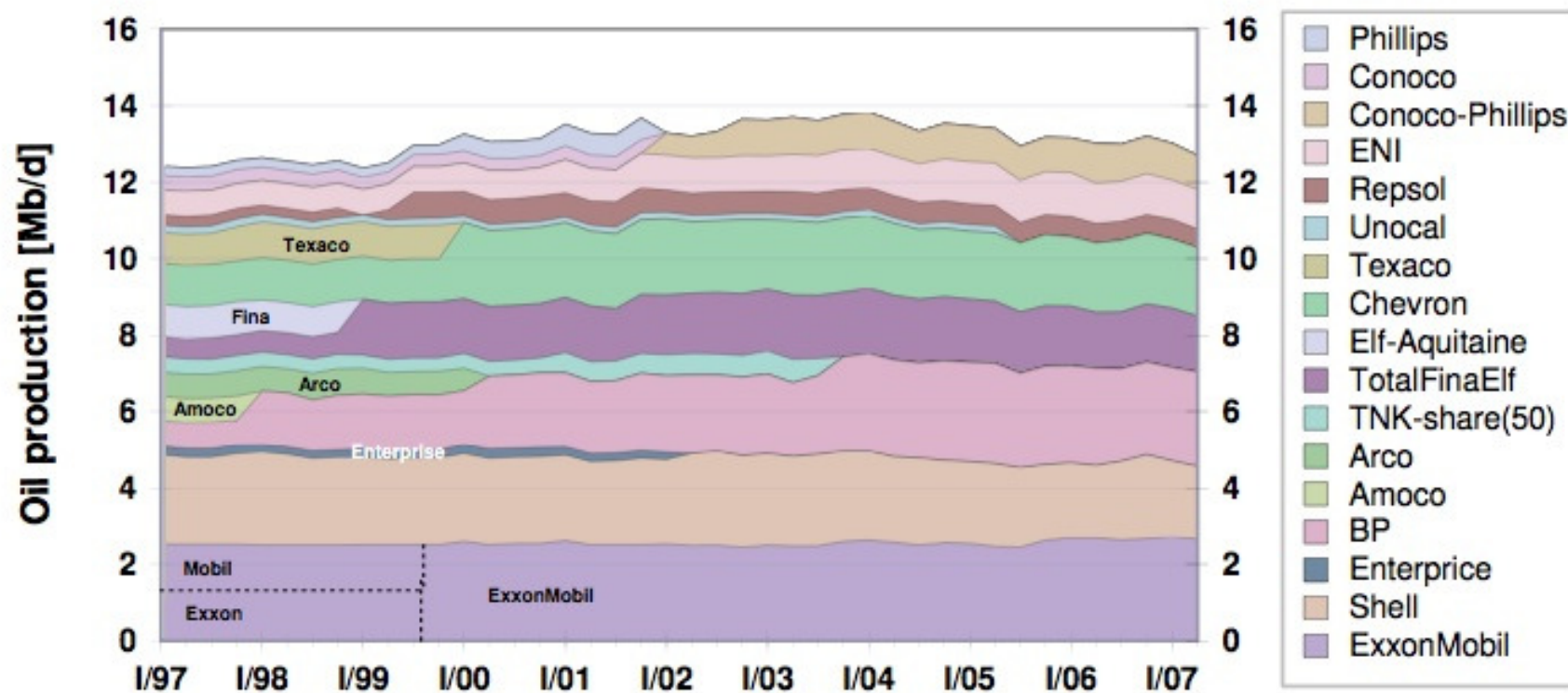
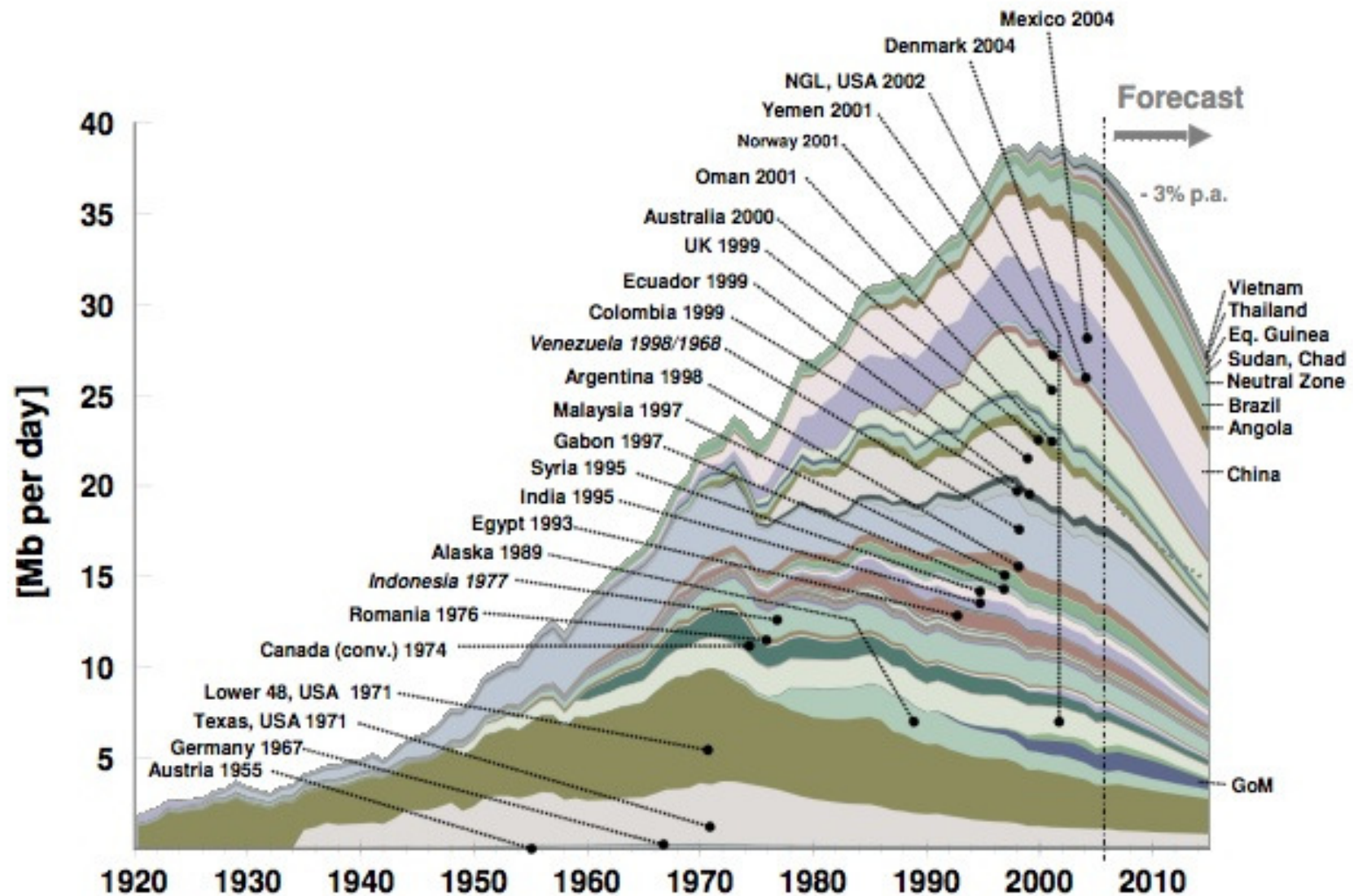


Figure 5: Oil producing countries past peak



Ludwig-Bölkow-Systemtechnik GmbH, 2007

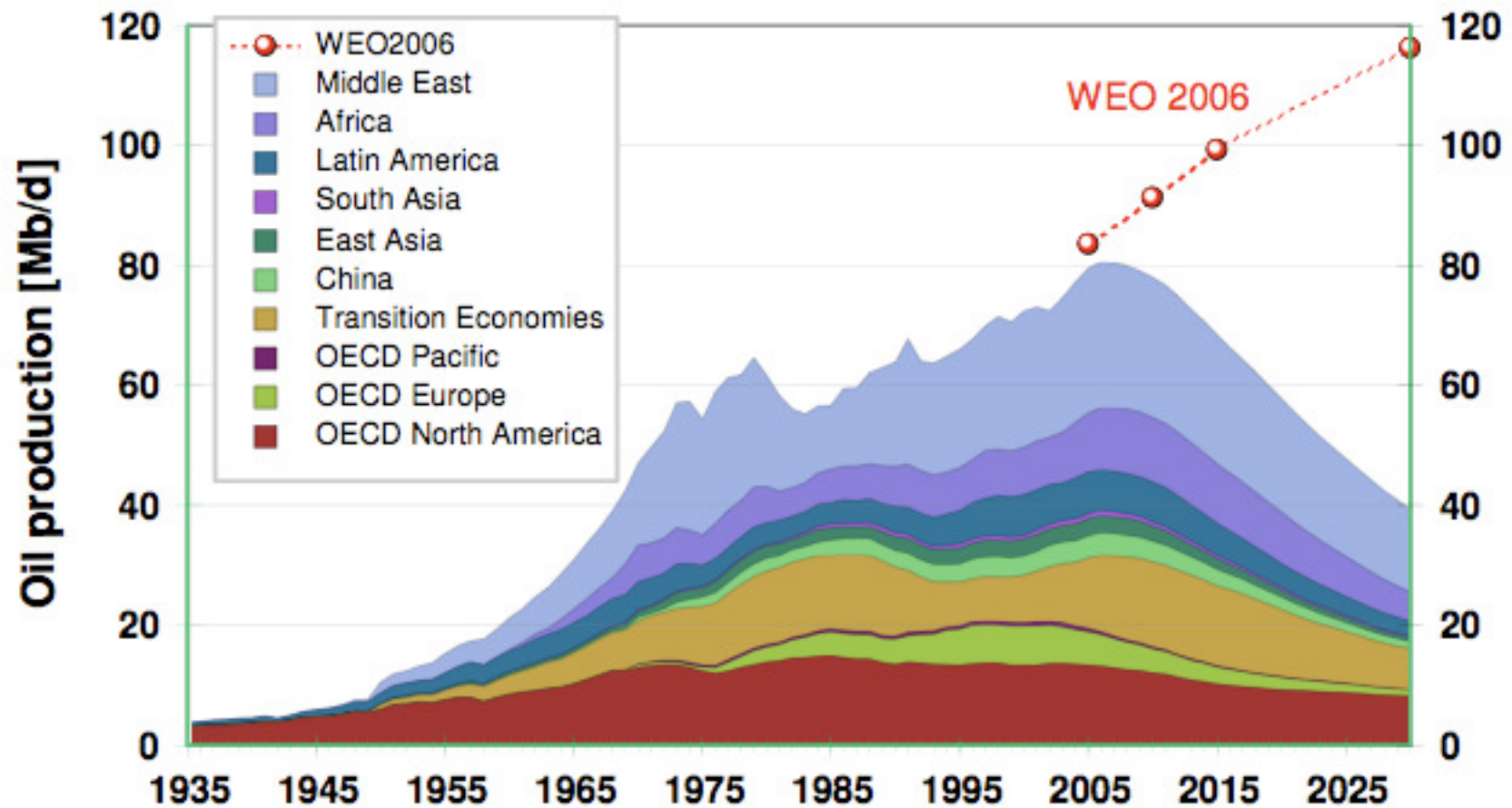
Source: IHS 2006; PEMEX, petrobras ; NPD, DTI, ENS(Dk), NEB, RRC, US-EIA, January 2007

Forecast: LBST estimate, 25 January 2007

Energy Watch Group 2007

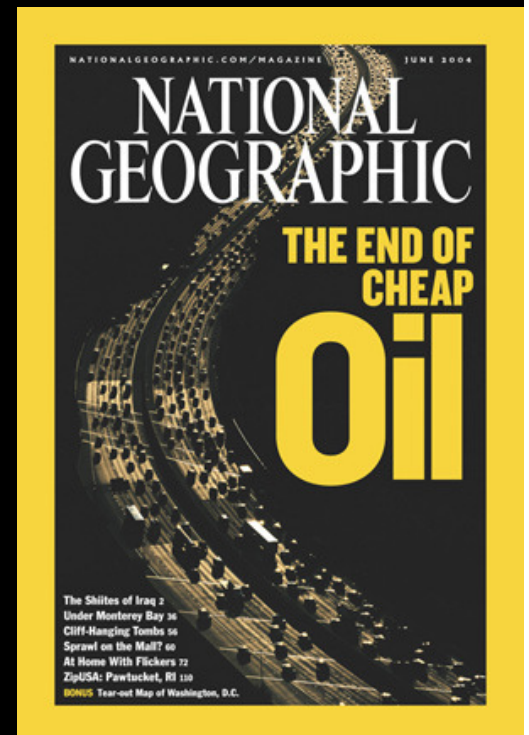
Figure 7

Figure 7: Oil production world summary

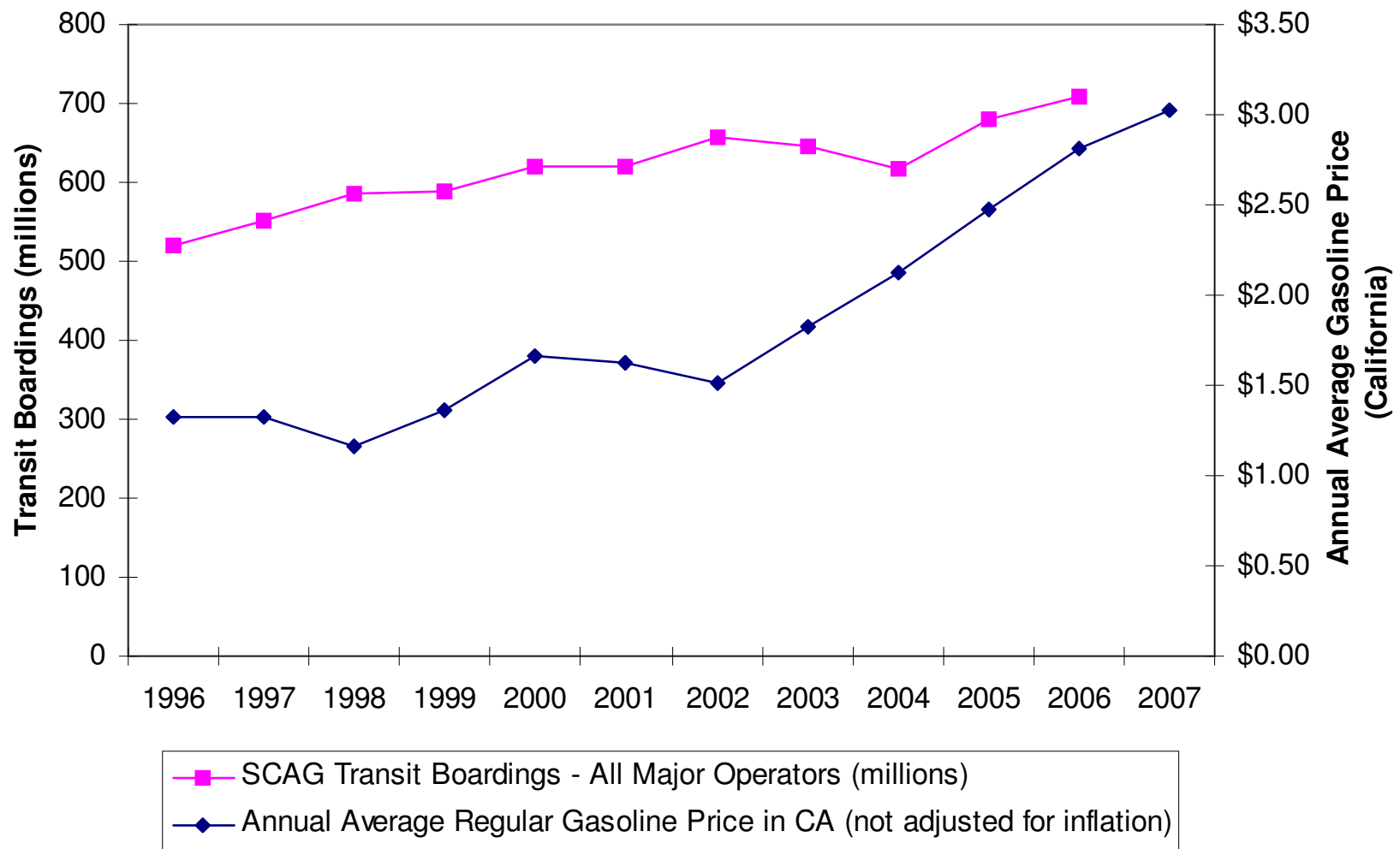


Energy Uncertainty: Implications for Transportation

- Challenges basic assumptions
 - Finance
 - Travel demand
 - Mode split
 - Future growth



SCAG Transit Boardings vs. California Gasoline Prices 1996 - 2007



Source: California Energy Commission, Weekly Fuel Prices 1996-2007 and SCAG.

RTP Strategies and Energy

- Aviation
 - Peak oil induced economic impacts could affect aviation demand

RTP Strategies and Energy

- Corridors
 - With the continuing escalation of global fuel prices, many transportation projects are beginning to experience unprecedented construction cost increases
 - Demand could be overstated

RTP Strategies and Energy

- Finance
 - Congestion pricing could reduce total vehicles on the road and subsequently reduce fuel consumption

RTP Strategies and Energy

- Goods movement
 - Demand could be overstated given the energy supply uncertainty.

RTP Strategies and Energy

- Growth
 - Growth may not be feasible in outlying areas due to high energy costs

RTP Strategies and Energy

- High-speed regional transport
 - Rail is significantly more energy efficient than other modes
 - As with goods movement, demand could be overstated given the energy supply uncertainty

RTP Strategies and Energy

- Transit
 - Increases in public transit ridership can proportionately reduce VMT, congestion, fuel consumption and improve air quality.

Recommendations

- Energy uncertainty requires serious consideration and further study
 - Energy cost feedback loop for modeling
 - Finance including fuel tax revenue
 - Economic impacts
 - Energy conservation strategies